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Analysis of Alternatives in System Capability Satisficing for Effective Acquisition

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SYSTEMS Development & Maturity Laboratory

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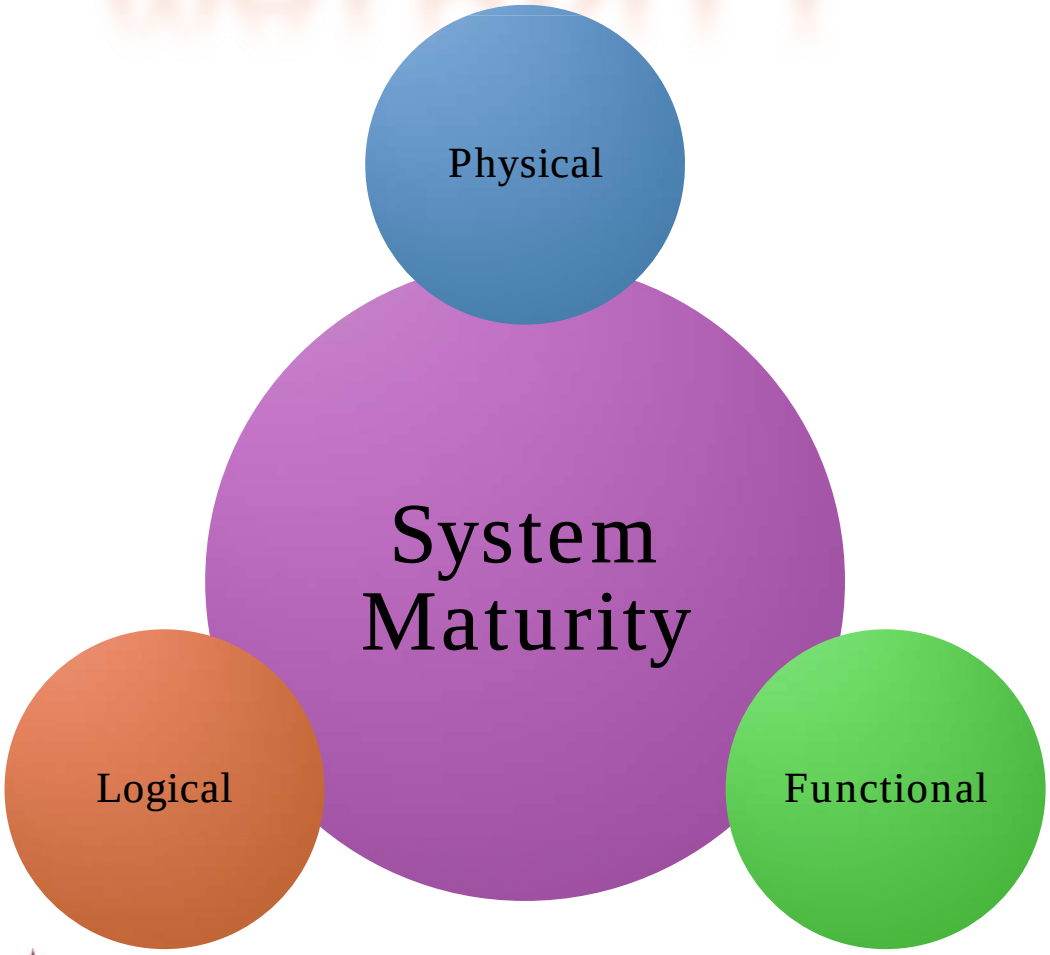
MATURITY



Indicates how a system responds to the circumstances or environment in an appropriate and adaptive manner.

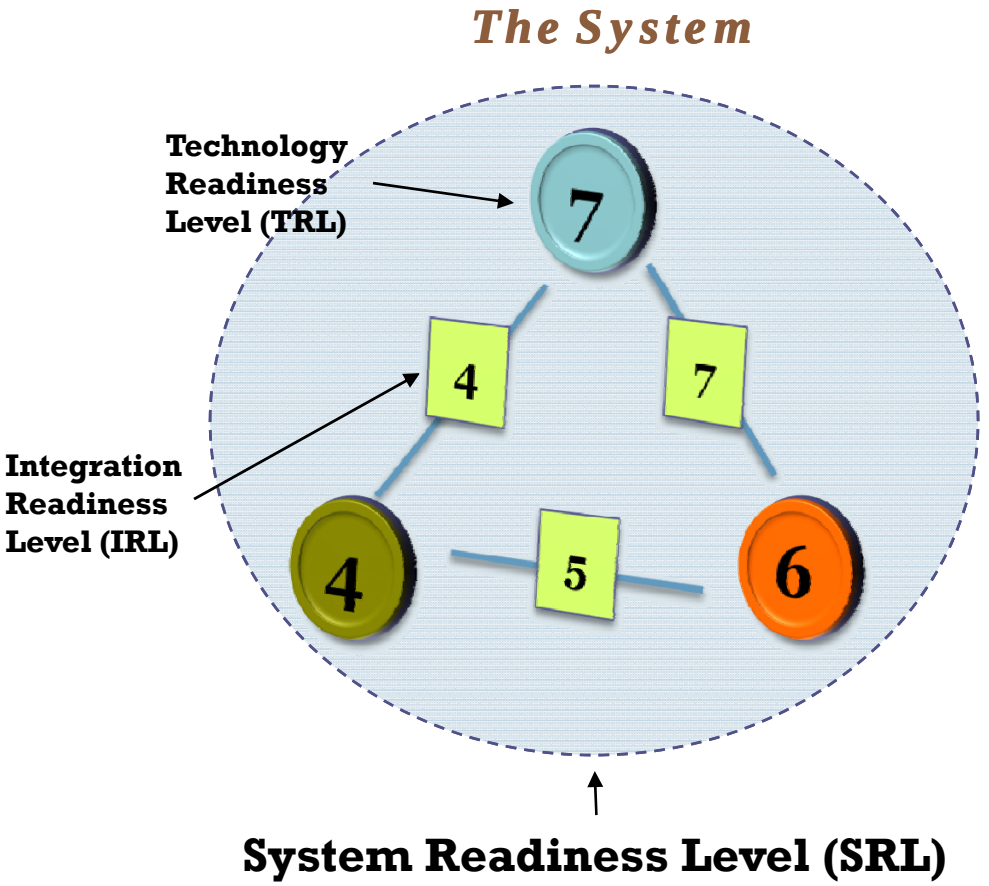
This response is designed (in some instances learned) and not determined by the system's age.

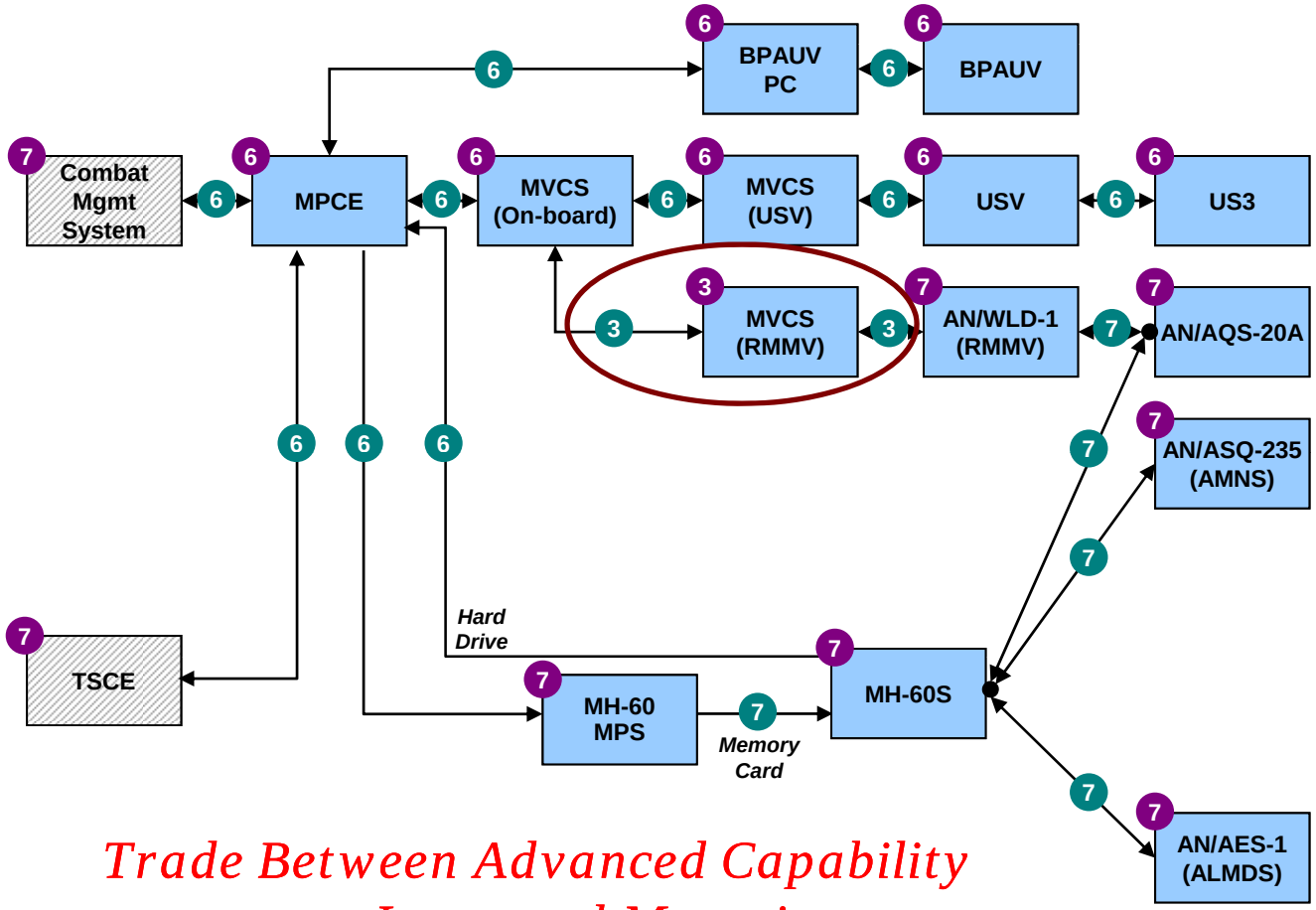
Encompases being aware of the correct time and place to deploy and knowing when to operate appropriately according to the situation

Systems Evolution and Lifecycle Management

Value Proposition:

- To provide a system-level view of development maturity with opportunities to drill down to element-level contributions
- To allows managers to evaluate system development in real-time and take proactive measures
- To create highly adaptive methods, processes, and tools to use on a wide array of system engineering development efforts





	MP SRL	MP SRL w/o Sea Frame
MP 1	0.60	0.57

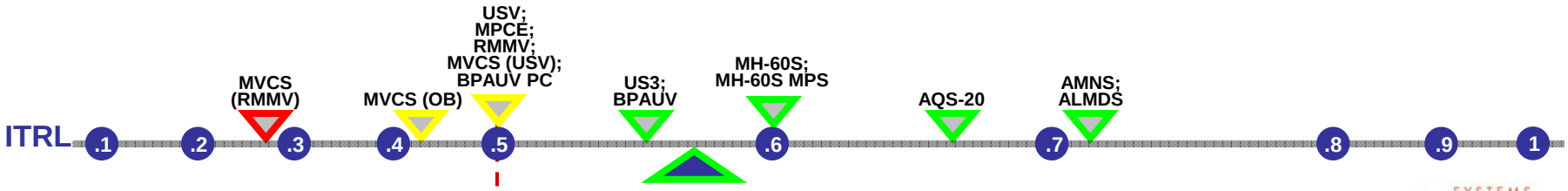
LEGEND

- MP Technology
- Sea Frame System
- Current Mission Package SRL Status
- Previous Mission Package SRL Status
- Current Mission System SRL Status
- Technology Readiness Level
- Integration Maturity Level
- System Readiness Level Demarcation
- Scheduled Position

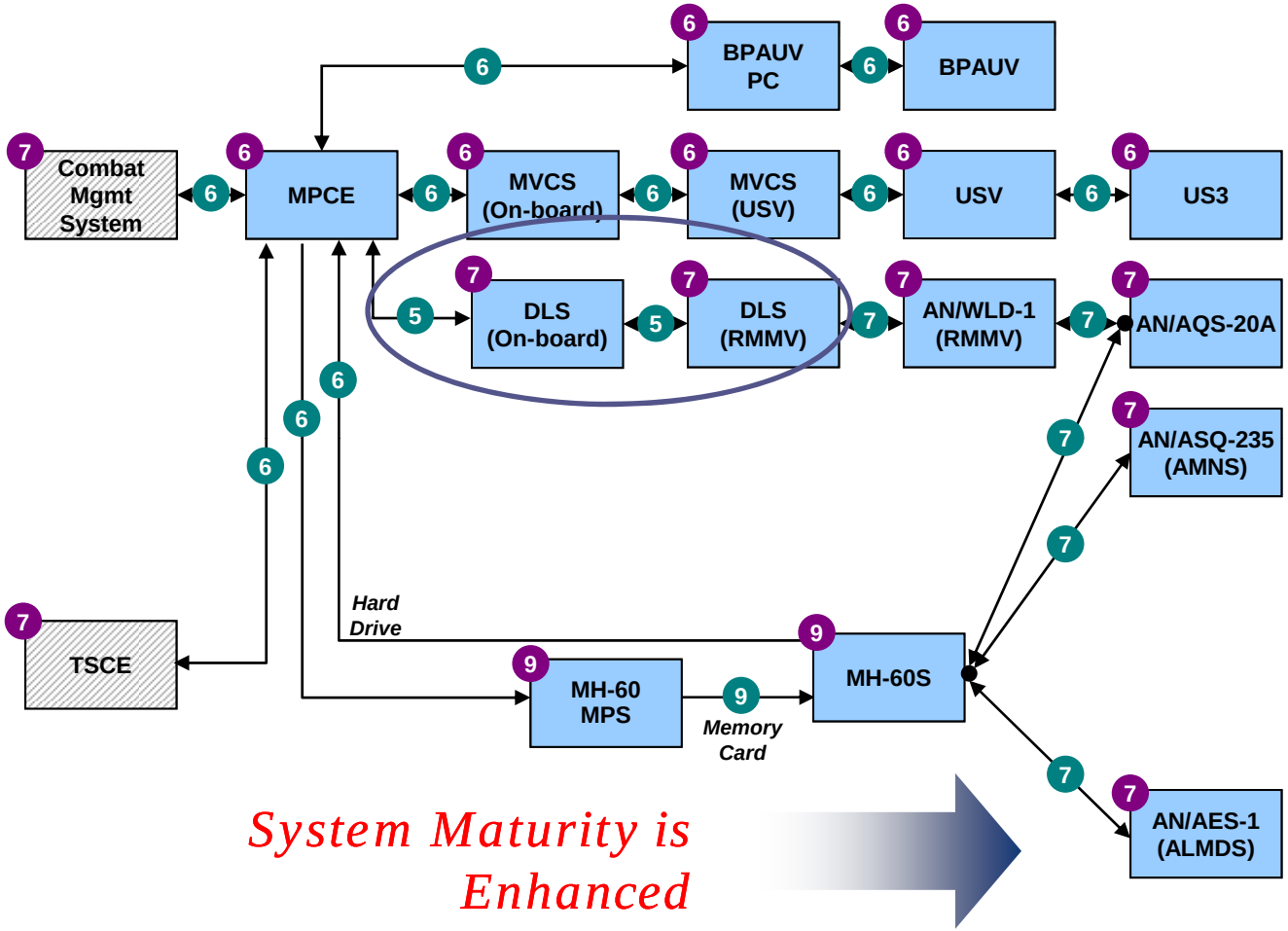
Risk to Cost and/or Schedule

Low Medium High

Trade Between Advanced Capability or Increased Maturity



Example provided by Northrop Grumman in support of the US Navy PMS 420 Program



	MP SRL	MP SRL w/o Sea Frame
MP 1	0.64	0.67

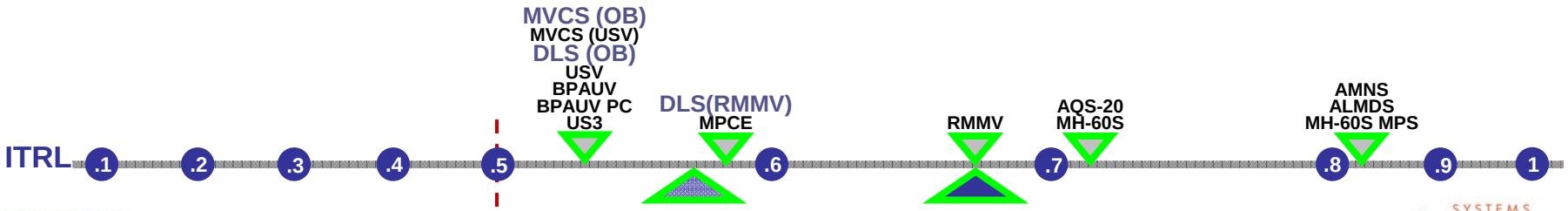
LEGEND

- MP Technology
- Sea Frame System
- Current Mission Package SRL Status
- Previous Mission Package SRL Status
- Current Mission System SRL Status
- Technology Readiness Level
- Integration Maturity Level
- System Readiness Level Demarcation
- Scheduled Position

Risk to Cost and/or Schedule

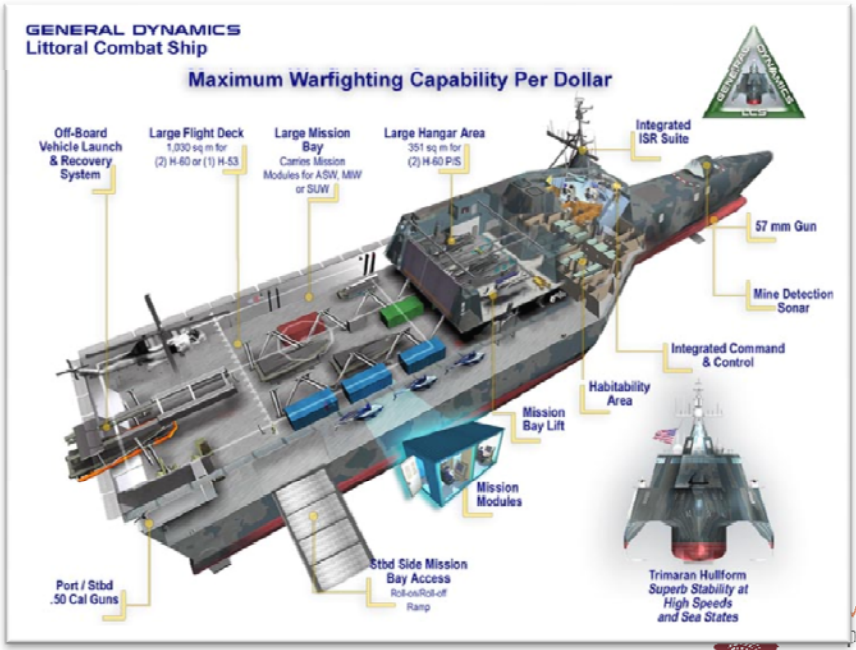
Low Medium High

System Maturity is Enhanced



Example provided by Northrop Grumman in support of the US Navy PMS 420 Program

Multi-Function, Multi-Capability (MFMC) System Development



A simple MFMC system-the Swiss Army Knife

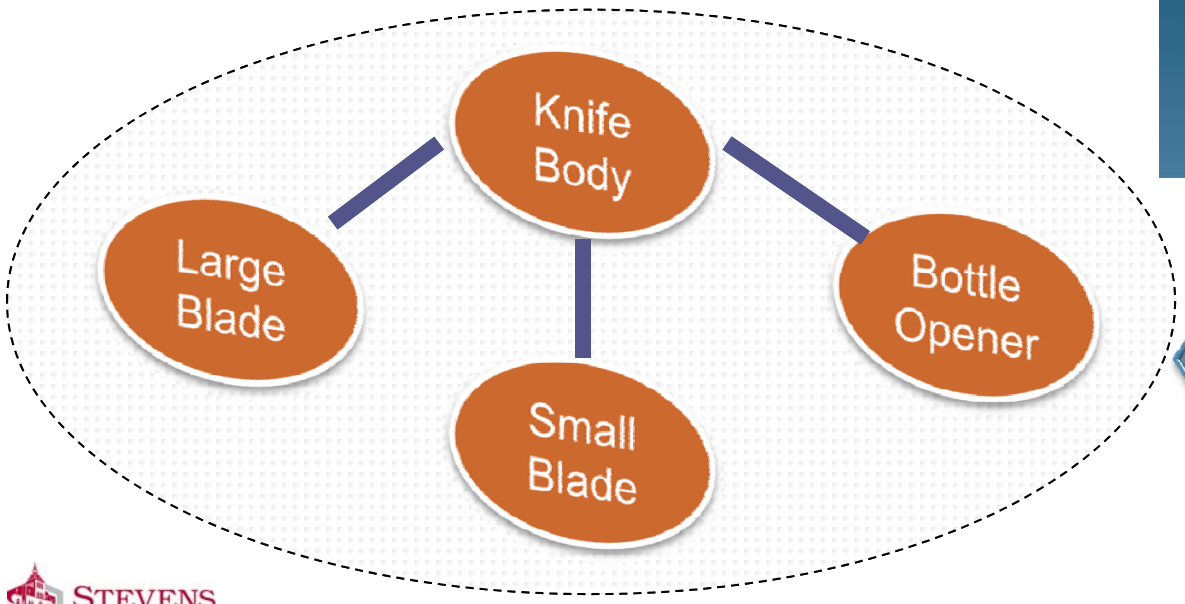
Same function, different capabilities

Different functions

Large blade: cut

Small blade: cut

Bottle opener: open bottles

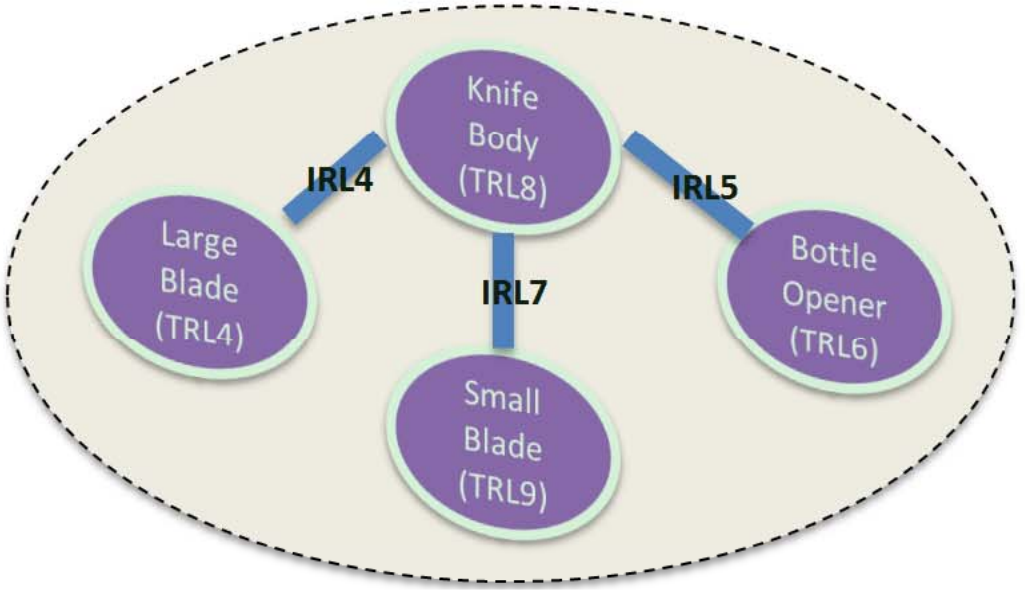


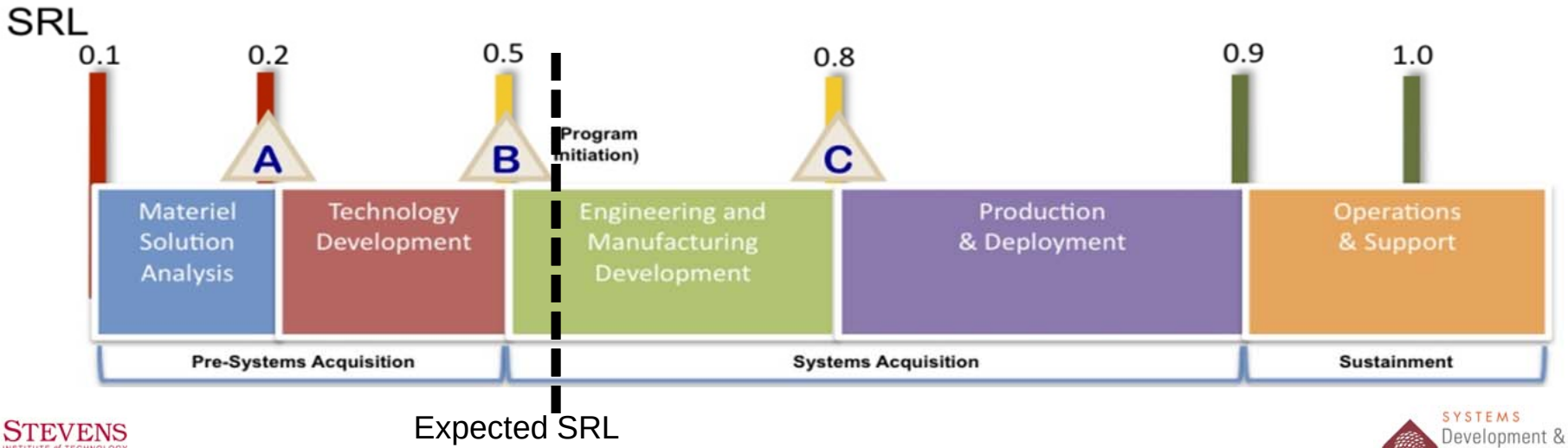
Simplified System Architecture

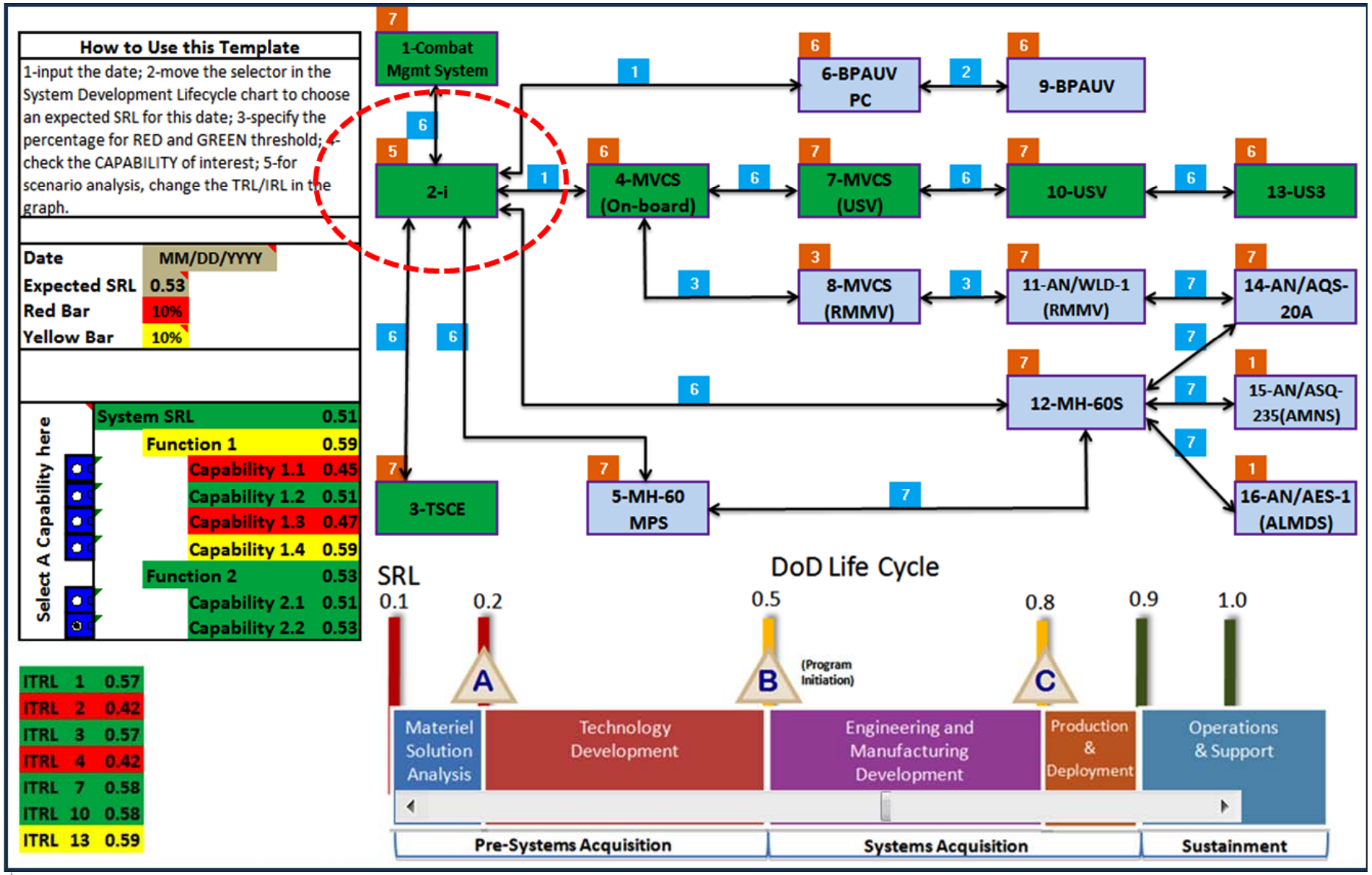
Example- apply it to the Swiss Army Knife (TRLs and IRLs are notional)

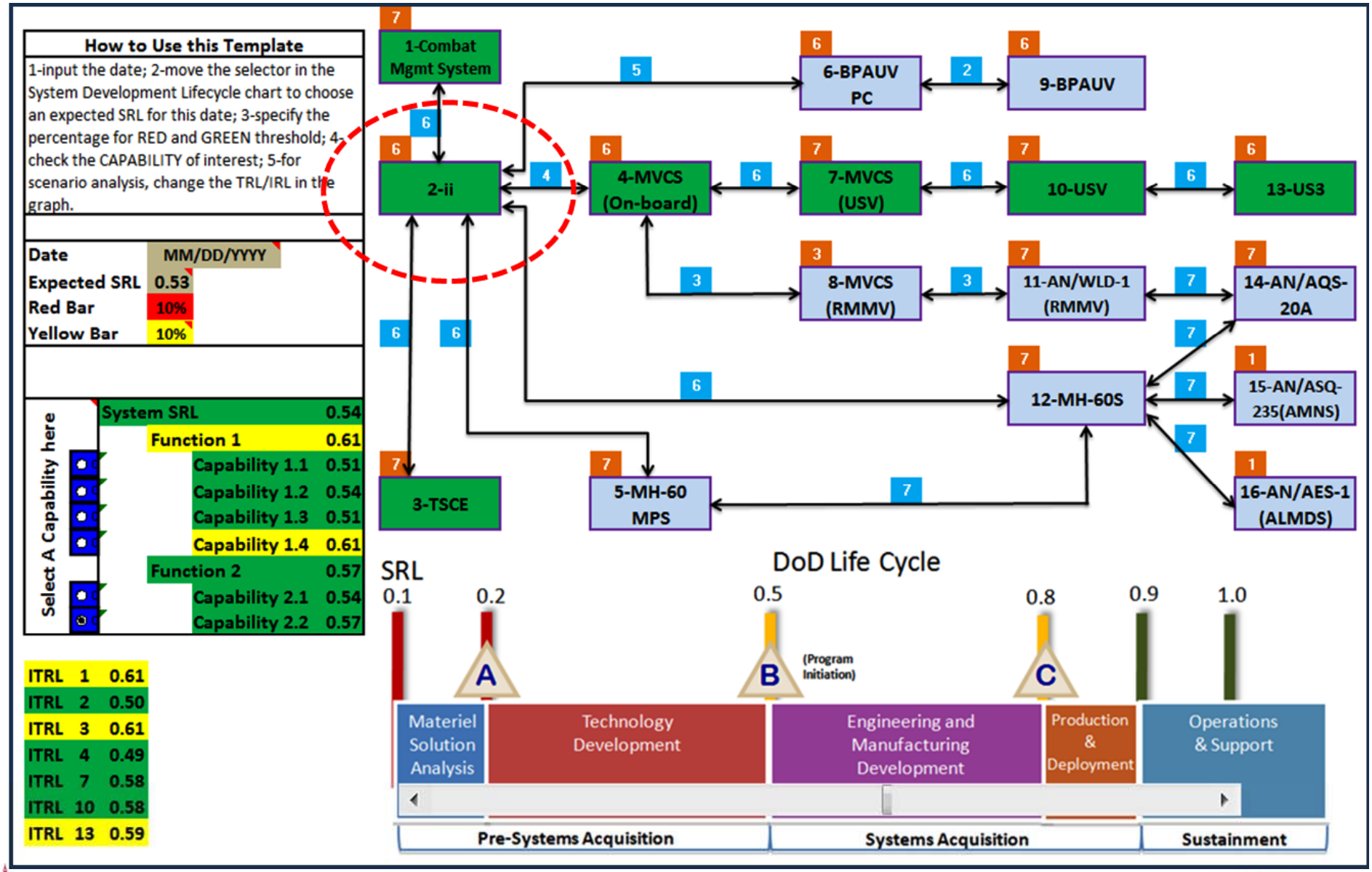
Date	**1/20/2011**
Expected SRL	**0.55**

System SRL	0.64
Function- Cutting	0.84
Capability-Small Blade	0.84
Capability-Large Blade	0.48
ITRL-Knife Body	0.54
ITRL-Large Blade	0.42
Function- Bottle Openning	0.60
Capability-Bottle Open	0.60

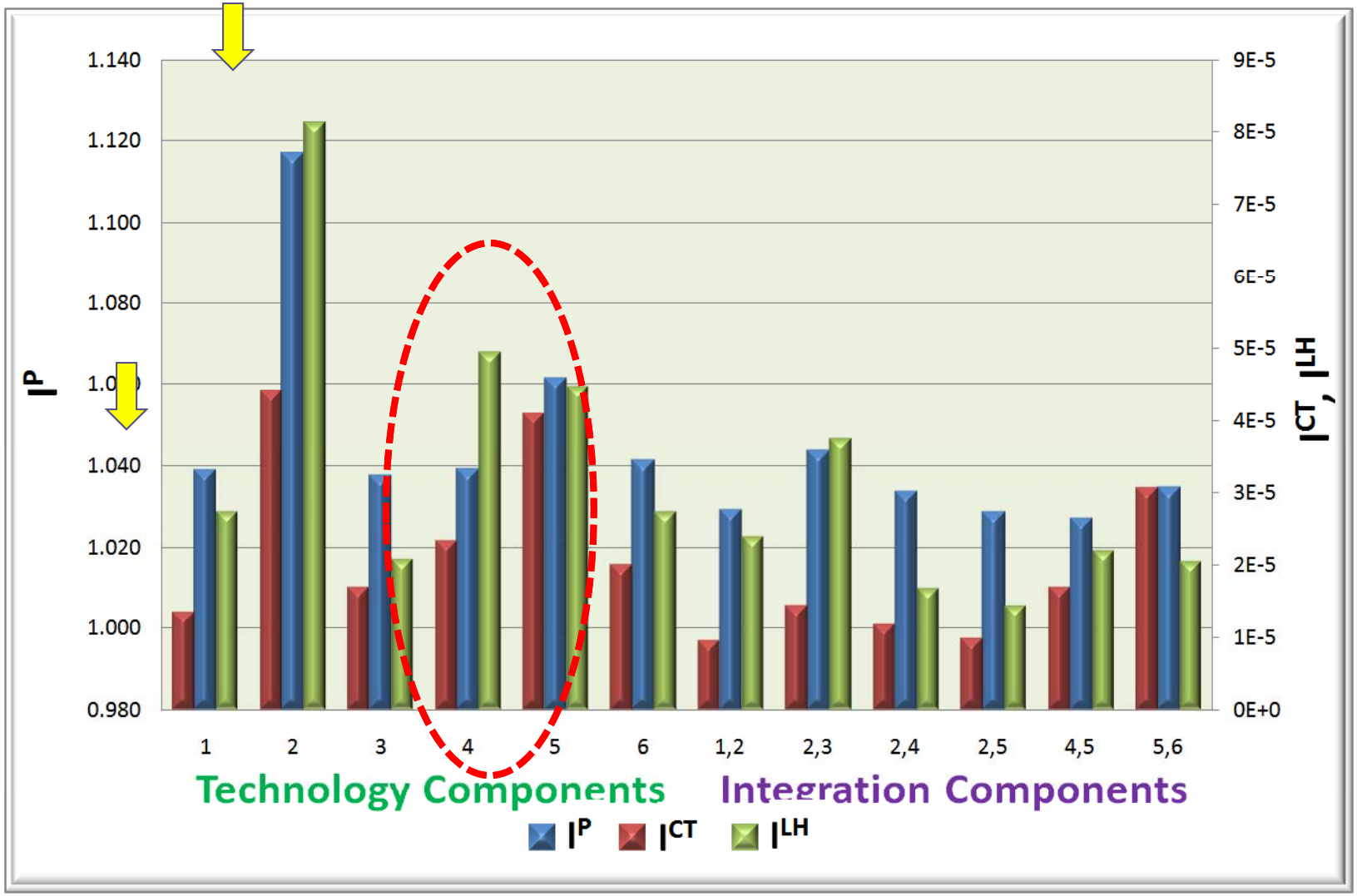


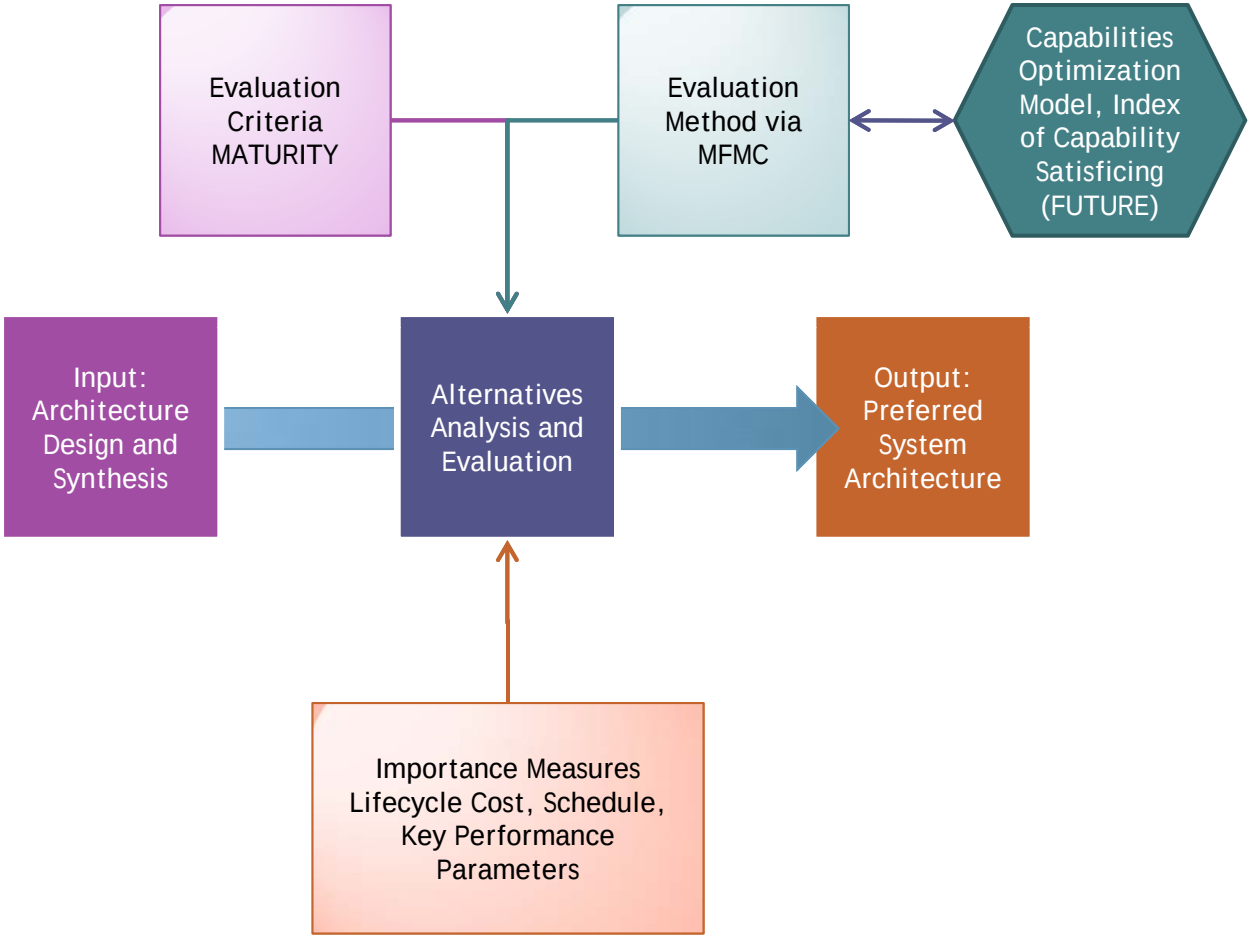






Applying Component Importance Measures





Special Thanks

- Naval Postgraduate School, Acquisition Research Program
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